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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/769,978	01/25/2001	Jerome J. Johnson	COMP0044/FLE P00-2995	5218

7590

04/19/2004

INTELLECTUAL PROPERTY ADMINISTRATION
LEGAL DEPARTMENT, M/S 35
PO BOX 272400
FT. COLLINS, CO 80527-2400

EXAMINER

LE, DIEU MINH T

ART UNIT

PAPER NUMBER

2114

DATE MAILED: 04/19/2004

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/769,978

Applicant(s)

JOHNSON ET AL.

Examiner

Dieu-Minh Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 and 34-45 is/are rejected.
- 7) ☒ Claim(s) 23-33 and 34-45 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Part III DETAILED ACTION

Specification

1. This Office Action is in response to the amendment filed February 09, 2004 in application 09/769,978.
2. Claims 1-56 are again presented for examination.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Applicant is requested to update the Cross-Reference to Related Applications listed on pages 2-4 of the specification.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time

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the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-22 and 34-45 are rejected under 35 U.S.C. § 103(a) as being unpatentable Guthrie et al. (US Patent 5,784,576 hereafter referred to as Guthrie) in view of Bard et al. (US Patent 6,604,152 hereafter referred to as Bard).

As per claim 1:

Guthrie substantially teaches the invention. Guthrie teaches:

- a method of altering device capacity in a computer system during operation, the computer system [abstract, col. 1, lines 1-10]

comprising:

- powering down one of device while leaving the remaining system operating [fig. 3 and 4A-B, col. 4, lines 15-25 and col. 6, lines 18-25];
- inserting a semiconductor device [col. 1, lines 7-10 and col. 7, lines 14-25];
- powering up the one of the plurality of devices [col. 6, lines 56-67 and col. 7, lines 14-25];

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- repeat powering down, inserting, and powering up steps until a semiconductor memory device has been inserted (i.e., powering up and down sequences) [fig. 3-4A-B, col. 5, lines 50-64.

Guthrie does not explicitly teach:

- a plurality removable memory cartridges.

However, Guthrie does disclose capability of:

- A method and apparatus for adding and removing components of a data processing system without powering down [abstract, fig. 3, col. 1, lines 1-10]

comprising:

- a data transmission connectivity among plurality of memory modules, controller, a central control logic, etc... via network bus [fig. 2, col. 4, lines 1-25];
- Adding and removing devices [col. 4, lines 1-3] hot-plug [abstract, col. 7, lines 15-18] (i.e., removable memory).

In addition, Bard explicitly teaches:

- A method of executing a program stored on a device inserted into a computer slot [abstract, fig. 6, col. 1, lines 1-15];

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comprising:

- removable memory cartridge [fig. 6, col. 1, lines 66 through col. 2, lines 1];
- power up and power down functions used to support the adding and removing of the removable memory cartridge [col. 2, lines 26-47].

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made first, to realize the Guthrie's method and apparatus for adding and removing components of a data processing system without powering down including adding and removing devices or hot-plugging feature as being removable memory cartridges as claimed by Applicant. This is because the Guthrie does clearly perform the memory upgrade, hot-plugging, and removing during the system operation in supporting the computer data processing; second, one would modify the Guthrie to explicitly including removable memory cartridge as taught by Bards' method of executing a program stored on a device inserted into a computer slot in a computer system in supporting data transmission/processing via memory data modules exchanging or replacement capability.

This modification would have been obvious because a person having ordinary skill in the art would have been motivated to do

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so to provide the memory system with plurality of memory modules, memory arrays, and more specifically to a removable cartridge memory with a mechanism to enhance data performance/monitoring, data availability/reliability, and data configuring/exchanging operation for data recovery process. It is further obvious because by utilizing this approach, memory system with a processor-based computer can be realized in high performance throughput with a high reliability and flexibility memory environment.

As per claims 2-4:

Guthrie further teaches:

- Adding and removing devices [col. 4, lines 1-3] hot-plug [abstract, col. 7, lines 15-18] (*i.e., removable memory*).
- encoding [col. 5, lines 57-59] and decoding capability (*i.e., data/parity information*) [col. 3, lines 60-67].

Guthrie does not explicitly teach:

- memory cartridge in non-redundant mode and unlocking one of the plurality of memory cartridge.

In addition, Bard explicitly teaches:

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- A method of executing a program stored on a device inserted into a computer slot [abstract, fig. 6, col. 1, lines 1-15];

comprising:

- a non-appliance mode on cartridge [col. 3, line 14];
- an allocation/de-allocation memory in cartridge [col. 3, lines 35-45].

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of Applicant's invention to use the non-appliance mode on cartridge and the allocation/de-allocation memory in cartridge capabilities as taught by Bard in conjunction with the adding and removing components of a data processing system without powering down as disclosed by Guthrie in order to better manage the memory cartridge process uninterruptedly (i.e., non-redundant mode and unlock cartridge). One of ordinary skill in the art would have been motivated to do so to enhance the continuity operation computer system during memory cartridge inserting and/or removing to and from the computer system. It is further obvious because by utilizing this approach, the combination of Guthrie and Bard can enhance data performance/monitoring, data

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availability/reliability, and data configuring/exchanging operation.

As per claims 5-7:

Guthrie substantially teaches the invention. Guthrie teaches:

- a method of altering device capacity in a computer system during operation, the computer system [abstract, col. 1, lines 1-10]

comprising:

- powering down one of device while leaving the remaining system operating [fig. 3 and 4A-B, col. 4, lines 15-25 and col. 6, lines 18-25];
- initializing each of the semiconductor memory device [col. 5, lines 45-49 and col. 6, lines 56-67];
- rebuilding (*i.e., repair and configuration*) data in each of the semiconductor memory [col. 1, lines 21-27];
- hot-plugging of device module (*i.e., removable memory*) [abstract, col. 7, lines 15-25];

Guthrie does not explicitly teach:

- dual in-line memory module.

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However, Guthrie does disclose capability of:

- A method and apparatus for adding and removing components of a data processing system without powering down [abstract, fig. 3, col. 1, lines 1-10]

comprising:

- EPROM and flash memory [col. 2, line 38];

In addition, Bard explicitly teaches:

- A method of executing a program stored on a device inserted into a computer slot [abstract, fig. 6, col. 1, lines 1-15];

comprising:

- removable memory cartridge [fig. 6, col. 1, lines 66 through col. 2, lines 1];
- non-volatile memory [col. 2, line 1].

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to realize the combination of Guthrie and Bard do teach the Applicant's dual in-line memory module limitation. This is because first, the flash memory is a family of dual in-line memory module; second, this dual in-line memory module is widely used within the computer area. It is further obvious because the

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dual in-line memory module is readily available and used to enhance the computer system operation environment.

As per claims 8-9:

Guthrie further teaches:

- replacing (i.e., inserting) a semiconductor device [col. 1, lines 7-10 and col. 7, lines 14-25];

Guthrie does not explicitly teach:

- a removable memory cartridges.

However, Guthrie does disclose capability of:

- A method and apparatus for adding and removing components of a data processing system without powering down [abstract, fig. 3, col. 1, lines 1-10] comprising:
 - a data transmission connectivity among plurality of memory modules, controller, a central control logic, etc... via network bus [fig. 2, col. 4, lines 1-25];
 - Adding and removing devices [col. 4, lines 1-3] hot-plug [abstract, col. 7, lines 15-18] (i.e., removable memory).

In addition, Bard explicitly teaches:

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- A method of executing a program stored on a device inserted into a computer slot [abstract, fig. 6, col. 1, lines 1-15];

comprising:

- removable memory cartridge [fig. 6, col. 1, lines 66 through col. 2, lines 1];
- power up and power down functions used to support the adding and removing of the removable memory cartridge [col. 2, lines 26-47].

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made first, to realize the Guthrie's method and apparatus for adding and removing components of a data processing system without powering down including adding and removing devices or hot-plugging feature as being removable memory cartridges as claimed by Applicant. This is because the Guthrie does clearly perform the memory upgrade, hot-plugging, and removing during the system operation in supporting the computer data processing; second, one would modify the Guthrie to explicitly including removable memory cartridge as taught by Bards' method of executing a program stored on a device inserted into a computer slot in a computer system in supporting data transmission/processing via

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memory data modules exchanging or replacement capability for the same reasons set forth as described in claim 1, **supra**.

As per claim 10:

Guthrie further teaches:

- configuring the semiconductor memory device [col. 1, lines 21-27];
- flushing transaction (i.e., resetting) [col. 4, lines 45-55];
- resynchronizing (i.e., enable and disable) each of the removable devices [col. 5, lines 11-21].

In addition, Bard explicitly teaches:

- A method of executing a program stored on a device inserted into a computer slot [abstract, fig. 6, col. 1, lines 1-15];

comprising:

- configuring the semiconductor memory device [col. 3, lines 25-34];
- flushing transaction (i.e., allocation and de-allocation) [col. 3, lines 35-45];

As per claims 11-22:

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These claims are similar to claims 1-10. The only minor different if that claims 11-22 introduce and call out first, second, third, fourth, and fifth memory cartridges for powering down, inserting memory, and powering up along with initializing and notifying memory to computer system. Claims 1-10 do perform same steps via the "repeat step" to performing powering down, inserting memory, and powering up along with initializing and notifying memory to computer system function. Apparently, Guthrie explicitly teaches a plurality of removable devices connected to PCI bus in supporting the method and apparatus for adding and removing components of a data processing system without powering down (i.e., adding and removing devices or hot-plugging features). These removable devices can be realized as first, second, third, fourth and fifth memory cartridges as claimed by Applicant. Therefore, theses claims are also rejected under the same rationale applied against claims 1-10. **In addition, all of the limitations have been noted in the rejection as per claims 1-10.**

As per claims 34-45:

These claims are similar to claims 1-10 and 11-22. The only minor different if that claims 11-22 introduce "removing first,

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second, third, fourth, and fifth memory module from memory cartridges".

However, Guthrie explicitly teaches a plurality of removable devices connected to PCI bus in supporting the method and apparatus for adding and removing components of a data processing system without powering down (i.e., adding and removing devices or hot-plugging features). These removable devices can be realized as first, second, third, fourth and fifth memory cartridges as claimed by Applicant.

Therefore, theses claims are also rejected under the same rationale applied against claims 1-10 and 11-22. **In addition, all of the limitations have been noted in the rejection as per claims 1-10 and 11-22.**

claims 1-10 and 11-22.

Allowable Subject Matter

7. Claims 23-33 and 46-56 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9. A shortened statutory period for response to this action is set to expired THREE (3) months, ZERO days from the date of this letter. Failure to respond within the period for response will cause the application to be abandoned. 35 U.S.C. 133.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dieu-Minh Le whose telephone number is (703) 305-9408. The examiner can normally be reached on Monday-Thursday from 8:30 AM to 6:00 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel, can be reached on (703)305-9713. The fax phone number for this Group is (703)746-7240.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

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(703)872-9306, (for formal communications
intended for entry).

Hand-delivered responses should be brought to Crystal
Park II, 2121 Crystal Drive, Arlington. VA., Sixth
Floor (Receptionist).



**DIEU-MINH THAI LE
PRIMARY EXAMINER
ART UNIT 2114**

DML
4/16/04